AMENDMENTS TO THE CLAIMS

The present document amends claims 48-50, 55 and 57-67. According to 37 C.F.R. § 1.121(c), after entry of the present amendment, the status of the claims in the case is as follows:

Claims 1-47 previously canceled

48. (Currently Amended) ~~A~~ The method of ~~selecting an improved low molecular weight protamine species or fraction, comprising selecting from a plurality of low molecular weight protamine species or fractions a low molecular weight protamine species or fraction that substantially retains the bioactivity of native protamine and that has substantially reduced immunoresponsiveness or toxicity compared to native protamine~~ claim 55, wherein said purified protamine has a molecular weight of between about 400 and about 2000 Daltons.

49. (Currently Amended) The method of claim 48, wherein said ~~plurality of low molecular weight protamine species or fractions are prepared by contacting a native protamine composition with at least a first proteolytic enzyme~~ purified protamine has a molecular weight of between about 500 and about 1350 Daltons.

50. (Currently Amended) The method of claim 48, ~~further comprising formulating the improved low molecular weight protamine species or fraction selected in a pharmaceutically acceptable composition~~ wherein said purified protamine has a molecular weight of between about 1100 and about 1300 Daltons.

Claims 51-54 previously canceled

55. (Currently Amended) A method of inactivating heparin or low molecular weight heparin, comprising contacting heparin or low molecular weight heparin with a ~~biologically effective~~ composition comprising an amount of at least a first purified ~~bioactive~~ protamine ~~in accordance with claim 1~~ effective to inactivate heparin or low molecular weight heparin; wherein said purified protamine is bioactive, has a molecular weight of between about 400 and about 2500 Daltons and has reduced immunoresponsiveness or toxicity compared to native protamine.

56. (Original) The method of claim 55, wherein said heparin or low molecular weight heparin is located within a mammal and said composition is administered to said mammal.

57. (Currently Amended) A method of ameliorating an effect of heparin or low molecular weight heparin in a mammal, comprising administering to said mammal ~~a therapeutically effective amount of~~ at least a first pharmaceutical composition comprising an amount of at least a first purified ~~bioactive~~ protamine ~~in accordance with claim 1~~ effective to ameliorate an effect of heparin or low molecular weight heparin in said mammal; wherein said purified protamine is bioactive, has a molecular weight of between about 400 and about 2500 Daltons and has reduced immunoresponsiveness or toxicity compared to native protamine.

58. (Currently Amended) A method for treating or preventing undue or excessive bleeding in a mammal, comprising administering to a mammal having or at risk for developing excessive

bleeding ~~a therapeutically effective amount of~~ at least a first pharmaceutical composition comprising an amount of at least a first purified ~~bioactive~~ protamine ~~in accordance with claim 1~~ effective to treat or prevent undue or excessive bleeding in said mammal; wherein said purified protamine is bioactive, has a molecular weight of between about 400 and about 2500 Daltons and has reduced immunoresponsiveness or toxicity compared to native protamine.

59. (Currently Amended) The method of claim ~~58~~ 64, wherein said mammal exhibits excessive bleeding associated with systemic heparinization.

60. (Currently Amended) The method of claim ~~58~~ 64, wherein said mammal exhibits excessive bleeding associated with extracorporeal blood circulation.

61. (Currently Amended) The method of claim ~~58~~ 64, wherein said mammal exhibits excessive bleeding associated with a disease or disorder.

62. (Currently Amended) The method of claim ~~58~~ 64, wherein said mammal exhibits excessive bleeding associated with a trauma or surgery.

63. (Currently Amended) The method of claim ~~58~~ 64, wherein at least a second coagulant is further administered to said mammal.

64. (Currently Amended) ~~A~~ The method of ~~prolonging the bioavailability of insulin upon administration to a mammal, comprising co-administering insulin to a mammal in combination with an effective amount of a protamine composition that comprises at least a first purified bioactive protamine in accordance with claim 1~~ claim 56, wherein said mammal has or is at risk for developing excessive bleeding.

65. (Currently Amended) ~~A~~ The method ~~for treating or preventing diabetes in a mammal, comprising administering insulin to a mammal having or at risk for developing diabetes in combination with a therapeutically effective amount of a protamine composition that comprises at least a first purified bioactive protamine in accordance with claim 1~~ claim 48, wherein said purified protamine has a molecular weight of about 1300 Daltons.

66. (Currently Amended) The method of ~~claim 64, wherein said insulin and said protamine composition are administered to said mammal in a single pharmaceutical composition~~ claim 48, wherein said purified protamine has a molecular weight of about 1200 Daltons.

67. (Currently Amended) The method of claim ~~64~~ 55, wherein said ~~insulin and said protamine composition are administered to said mammal in distinct pharmaceutical compositions~~ composition comprises at least a first and at least a second purified protamine.

68. (Previously Presented) The method of claim 56, wherein said mammal is a human subject.